AMENDMENTS TO THE CLAIMS

1. (original) A curable composition, comprising:

a capped poly(arylene ether) prepared by the reaction of an uncapped poly(arylene ether) with an anhydride capping agent; and

an olefinically unsaturated monomer;

wherein the composition after curing absorbs less than 1 weight percent water after 7 days at 85°C and 85 percent relative humidity.

2. (original) The curable composition of claim 1, wherein the composition comprises less than 50 parts per million by weight of the anhydride capping agent, based on the weight of the capped poly(arylene ether).

3. (original) The curable composition of claim 2, wherein the composition comprises less than 1 weight percent, based on the weight of the capped poly(arylene ether), of a free acid obtained on hydrolysis of the anhydride capping agent.

4. (original) The curable composition of claim 2, wherein the reaction of the uncapped poly(arylene ether) with the anhydride capping agent is performed in the presence of an organic amine catalyst, and wherein the composition comprises less than 1,000 parts per million by weight of the organic amine catalyst, based on the weight of the capped poly(arylene ether).

5. (original) The curable composition of claim 4, wherein the organic amine catalyst comprises a tertiary alkylamine, a tertiary mixed alkyl-aryl amine, or a heterocyclic amine.

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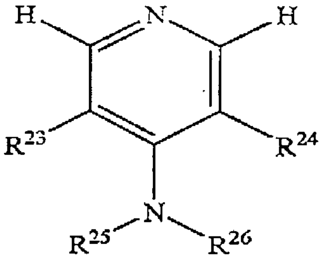
6. (original) The curable composition of claim 4, wherein the organic amine catalyst comprises a 4-dialkylaminopyridine having the structure



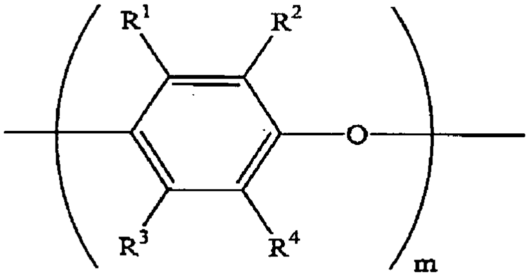
wherein R^{23} and R^{24} are each independently hydrogen or C_1-C_6 alkyl, and R^{25} and R^{26} are each independently C_1-C_6 alkyl.

7. (original) The curable composition of claim 4, wherein the organic amine catalyst comprises 4-dimethylaminopyridine.

8. (original) The curable composition of claim 1, wherein the capped poly(arylene ether) has the formula

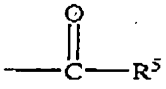
$$Q(J\text{-}K)_y$$

wherein Q is the residuum of a monohydric, dihydric, or polyhydric phenol; y is 1 to 100; J comprises repeating structural units having the formula



wherein R^1 and R^3 are each independently selected from hydrogen, halogen, primary or secondary C_1-C_{12} alkyl, C_2-C_{12} alkenyl, C_2-C_{12} alkynyl, C_1-C_{12} aminoalkyl, C_1-C_{12} hydroxyalkyl, phenyl, C_1-C_{12} haloalkyl, C_1-C_{12} hydrocarbyloxy, and C_2-C_{12}

halohydrocarbyloxy wherein at least two carbon atoms separate the halogen and oxygen atoms; R^2 and R^4 are each independently selected from halogen, primary or secondary C_1-C_{12} alkyl, C_2-C_{12} alkenyl, C_2-C_{12} alkynyl, C_1-C_{12} aminoalkyl, C_1-C_{12} hydroxyalkyl, phenyl, C_1-C_{12} haloalkyl, C_1-C_{12} hydrocarbyloxy, and C_2-C_{12} halohydrocarbyloxy wherein at least two carbon atoms separate the halogen and oxygen atoms; m is 1 to about 200; and K is a capping group selected from



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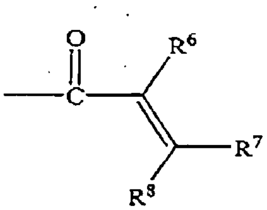

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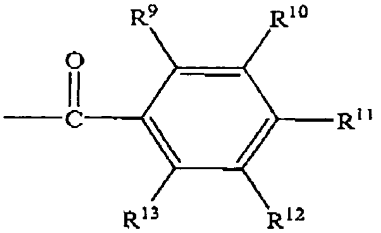

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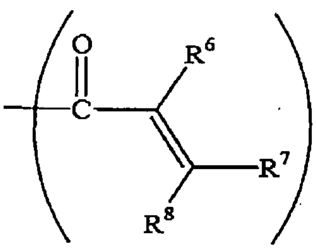
wherein R^5 is C_1-C_{12} hydrocarbyl optionally substituted with one or two carboxylic acid groups; R^6-R^8 are each independently selected from hydrogen, C_1-C_{18} hydrocarbyl, C_2-C_{18} hydrocarbyloxycarbonyl, nitrile, formyl, carboxylic acid, imidate, and thiocarboxylic acid; R^9-R^{13} are each independently selected from hydrogen, halogen, C_1-C_{12} alkyl, hydroxy, amino, and carboxylic acid.

9. (original) The curable composition of claim 1, wherein the capped poly(arylene ether) comprises at least one capping group having the structure

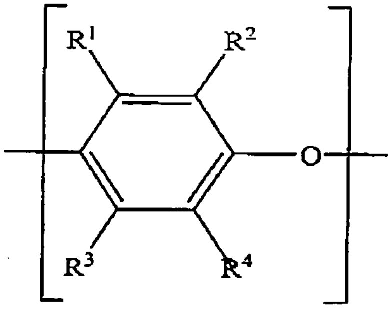


wherein each occurrence of R^6-R^8 is independently selected from hydrogen, C_1-C_{18} hydrocarbyl, C_2-C_{12} hydrocarbyloxycarbonyl, nitrile, formyl, carboxylic acid, imidate, and thiocarboxylic acid.

10. (original) The curable composition of claim 1, wherein the capped poly(arylene ether) comprises a methacrylate-capped poly(2,6-dimethyl-1,4-phenylene ether).

11. (original) The curable composition of claim 1, comprising about 5 to about 90 parts by weight of the capped poly(arylene ether) per 100 parts by weight total of the capped poly(arylene ether) and the olefinically unsaturated monomer.

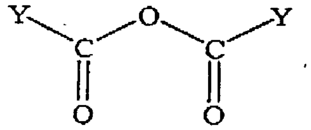
12. (original) The curable composition of claim 1, wherein the uncapped poly(arylene ether) comprises repeating structural units having the formula



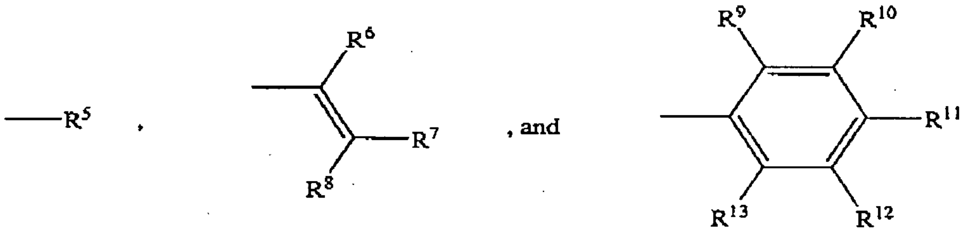
wherein for each structural unit, R^1 and R^3 are each independently selected from hydrogen, halogen, primary or secondary C_1-C_{12} alkyl, C_2-C_{12} alkenyl, C2-C_{12} alkynyl, C_1-C_{12} aminoalkyl, C_1-C_{12} hydroxyalkyl, phenyl, C_1-C_{12} haloalkyl, C_1-C_{12} hydrocarbyloxy, and C_2-C_{12} halohydrocarbyloxy wherein at least two carbon atoms separate the halogen and oxygen atoms; and for each structural unit, R^2 and R^4 are each independently selected from halogen, primary or secondary C_1-C_{12} alkyl, C_2-C_{12} alkenyl, C_2-C_{12} alkynyl, C_1-C_{12} aminoalkyl, C_1-C_{12} hydroxyalkyl, phenyl, C_1-C_{12} haloalkyl, C_1-C_{12} hydrocarbyloxy, and C_2-C_{12} halohydrocarbyloxy wherein at least two carbon atoms separate the halogen and oxygen atoms.

13. (original) The curable composition of claim 1, wherein the uncapped poly(arylene ether) comprises poly(2,6-dimethyl-1,4-phenylene ether), poly(2,6-dimethyl-1,4-phenylene ether-*co*-2,3,6-trimethyl-1,4-phenylene ether), or a mixture thereof.

14. (original) The curable composition of claim 1, wherein the anhydride capping agent has the structure

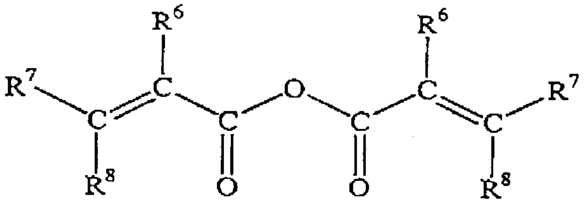


wherein each occurrence of Y is independently selected from



wherein R^5 is C_1-C_{12} hydrocarbyl optionally substituted with one or two carboxylic acid groups; R^6-R^8 are each independently hydrogen, C_1-C_{18} hydrocarbyl optionally substituted with one or two carboxylic acid groups, C_2-C_{18} hydrocarbyloxycarbonyl, nitrile, formyl, carboxylic acid, imidate, or thiocarboxylic acid; and R^9-R^{13} are each independently hydrogen, halogen, C_1-C_{12} alkyl, hydroxy, amino, or carboxylic acid.

15. (original) The curable composition of claim 1, wherein the anhydride capping agent has the structure



wherein each occurrence of R^6-R^8 is independently selected from hydrogen, C_1-C_{18} hydrocarbyl, C_2-C_{12} hydrocarbyloxycarbonyl, nitrile, formyl, carboxylic acid, imidate, and thiocarboxylic acid.

16. (original) The curable composition of claim 1, wherein the anhydride capping agent comprises acrylic anhydride, methacrylic anhydride, or a mixture thereof.

17. (original) The curable composition of claim 1, wherein preparing the capped poly(arylene ether) comprises precipitating the capped poly(arylene ether) from an antisolvent.

18. (original) The curable composition of claim 17, wherein the antisolvent comprises a compound selected from alkanols having one to about ten carbon atoms, ketones having three to about ten carbon atoms, and alkanes having five to about ten carbon atoms, and mixtures thereof.

19. (original) The curable composition of claim 17, wherein the antisolvent comprises a C_2-C_6 alkanol.

20. (original) The curable composition of claim 17, wherein the antisolvent comprises isopropanol.

21. (currently amended) [The curable composition of claim 1,] A curable composition, comprising:

a capped poly(arylene ether) prepared by the reaction of an uncapped poly(arylene ether) with an anhydride capping agent; wherein the reaction of [an] the uncapped poly(arylene ether) with [an] the anhydride capping agent is conducted in a solvent to form a solution of the capped poly(arylene ether), and wherein the solution of the capped poly(arylene ether) is washed with an aqueous solution; and

an olefinically unsaturated monomer;

wherein the composition after curing absorbs less than 1 weight percent water after 7 days at 85°C and 85 percent relative humidity.

22. (currently amended) [The curable composition of claim 21,] A curable composition, comprising:

a capped poly(arylene ether) prepared by the reaction of an uncapped poly(arylene ether) with an anhydride capping agent; wherein the reaction of the uncapped poly(arylene ether) with the anhydride capping agent is conducted in a solvent to form a solution of the capped poly(arylene ether), and wherein the solution of the capped poly(arylene ether) is washed with an aqueous solution [wherein the aqueous solution has] having a pH of about 1 to about 7; and

an olefinically unsaturated monomer;

wherein the composition after curing absorbs less than 1 weight percent water after 7 days at 85°C and 85 percent relative humidity.

23. (currently amended) [The curable composition of claim 21,] A curable composition, comprising:

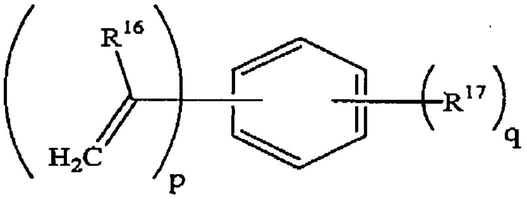
a capped poly(arylene ether) prepared by the reaction of an uncapped poly(arylene ether) with an anhydride capping agent; wherein the reaction of the uncapped poly(arylene ether) with the anhydride capping agent is conducted in a solvent to form a solution of the capped poly(arylene ether), and wherein the solution of the capped poly(arylene ether) is washed with an aqueous solution [wherein the aqueous solution has] having a pH of about 7 to about 13; and

an olefinically unsaturated monomer;

wherein the composition after curing absorbs less than 1 weight percent water after 7 days at 85°C and 85 percent relative humidity.

24. (original) The curable composition of claim 1, wherein the olefinically unsaturated monomer comprises an alkenyl aromatic monomer, an allylic monomer, an acryloyl monomer, or a mixture thereof.

25. (original) The curable composition of claim 1, wherein the olefinically unsaturated monomer comprises an alkenyl aromatic monomer having the formula



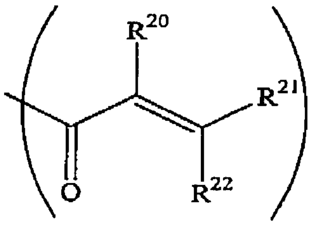
wherein each occurrence of R^{16} is independently hydrogen or C_1-C_{18} hydrocarbyl; each occurrence of R^{17} is independently halogen, C_1-C_{12} alkyl, C_1-C_{12} alkoxyl, or C_6-C_{18} aryl; p is 1 to 4; and q is 0 to 5.

26. (original) The curable composition of claim 1, wherein the olefinically unsaturated monomer comprises an alkenyl aromatic monomer selected from styrene, α-methylstyrene, 2-methylstyrene, 3-methylstyrene, 4-methylstyrene, 2-t-butylstyrene, 3-t-butylstyrene, 4-t-butylstyrene, 1,3-divinylbenzene, 1,4-divinylbenzene, 1,3-diisopropenylbenzene, 1,4-diisopropenylbenzene, styrenes having from 1 to 5 halogen substituents on the aromatic ring, and combinations thereof.

27. (original) The curable composition of claim 1, wherein the olefinically unsaturated monomer comprises styrene.

28. (original) The curable composition of claim 1, wherein the olefinically unsaturated monomer comprises an allylic monomer selected from diallyl phthalate, diallyl isophthalate, triallyl mellitate, triallyl mesate, triallyl benzenes, triallyl cyanurate, triallyl isocyanurate, mixtures thereof, and partial polymerization products prepared therefrom.

29. (original) The curable composition of claim 1, wherein the olefinically unsaturated monomer comprises an acryloyl monomer comprising least one acryloyl moiety having the structure



wherein R^{20}-R^{22} are each independently selected from hydrogen, C_1-C_{12} hydrocarbyl, C_2-C_{18} hydrocarbyloxycarbonyl, nitrile, formyl, carboxylic acid, imidate, and thiocarboxylic acid.

30. (original) The curable composition of claim 29, wherein the acryloyl monomer comprises at least two acryloyl moieties.

31. (original) The curable composition of claim 1, wherein the olefinically unsaturated monomer comprises an acryloyl monomer selected from trimethylolpropane tri(meth)acrylate, 1,6-hexanediol di(meth)acrylate, neopentyl glycol di(meth)acrylate, ethylene glycol di(meth)acrylate, propylene glycol di(meth)acrylate, cyclohexanedimethanol di(meth)acrylate, butanediol di(meth)acrylate, diethylene glycol di(meth)acrylate, triethylene glycol di(meth)acrylate, isobornyl (meth)acrylate, methyl (meth)acrylate, methacryloxypropyl trimethoxysilane, ethoxylated (2) bisphenol A di(meth)acrylate, and mixtures thereof.

32. (original) The curable composition of claim 1, comprising about 10 to about 95 parts by weight of the olefinically unsaturated monomer per 100 parts by weight total of the capped poly(arylene ether) and the olefinically unsaturated monomer.

33. (original) The curable composition of claim 1, further comprising about 5 to about 95 weight percent of a particulate filler, based on the total weight of the composition.

34. (original) The curable composition of claim 33, wherein the particulate filler amount is about 75 to about 95 weight percent, based on the total weight of the composition.

35. (original) The curable composition of claim 33, wherein the particulate filler is fused silica.

36. (original) The curable composition of claim 1, further comprising a curing catalyst.

37. (original) The curable composition of claim 36, wherein the curing catalyst is selected from benzoyl peroxide, dicumyl peroxide, methyl ethyl ketone peroxide, lauryl peroxide, cyclohexanone peroxide, t-butyl hydroperoxide, t-butyl benzene hydroperoxide, t-butyl peroctoate, 2,5-dimethylhexane-2,5-dihydroperoxide, 2,5-dimethyl-2,5-di(t-butylperoxy)-hex-3-yne, di-t-butylperoxide, t-butylcumyl peroxide, α,α'-bis(t-butylperoxy-m-isopropyl)benzene, 2,5-dimethyl-2,5-di(t-butylperoxy)hexane, di(t-butylperoxy) isophthalate, t-butylperoxy benzoate, 2,2-bis(t-butylperoxy)butane, 2,2-bis(t-butylperoxy)octane, 2,5-dimethyl-2,5-di(benzoylperoxy)hexane, di(trimethylsilyl)peroxide, trimethylsilylphenyltriphenylsilyl peroxide, and mixtures thereof.

38. (original) The curable composition of claim 1, further comprising a curing inhibitor.

39. (currently amended) [The curable composition of claim 38,] A curable composition, comprising:

a capped poly(arylene ether) prepared by the reaction of an uncapped poly(arylene ether) with an anhydride capping agent;

an olefinically unsaturated monomer; and

a curing inhibitor; wherein the curing inhibitor is selected from diazoaminobenzene, phenylacetylene, sym-trinitrobenzene, p-benzoquinone, acetaldehyde, aniline condensates, N,N'-dibutyl-o-phenylenediamine, N-butyl-p-aminophenol, p-methoxyphenol, 2,4,6-triphenylphenoxyl, pyrogallol, catechol, hydroquinone, monoalkylhydroquinones, t-butylhydroquinone, C_1-C_6-alkyl-substituted catechols, t-butylcatechol, dialkylhydroquinones, 2,4,6-dichloronitrophenol, halogen-ortho-nitrophenols, alkoxyhydroquinones, mono- and di- and polysulfides of phenols and catechols, thiols, oximes and hydrazones of quinone, phenothiazine, dialkylhydroxylamines, poly(arylene ether)s having free hydroxyl groups, and combinations thereof;

wherein the composition after curing absorbs less than 1 weight percent water after 7 days at 85°C and 85 percent relative humidity.

40. (original) The curable composition of claim 1, further comprising an additive selected from dyes, pigments, colorants, antioxidants, heat stabilizers, light stabilizers, plasticizers, lubricants, flow modifiers, drip retardants, flame retardants, antiblocking agents, antistatic agents, flow-promoting agents, processing aids, substrate adhesion agents, mold release agents, toughening agents, low-profile additives, stress-relief additives, and combinations thereof.

41. (original) A curable composition, comprising:

a capped poly(arylene ether) prepared by the reaction of an uncapped poly(arylene ether) with an anhydride capping agent; wherein the capped poly(arylene ether) is isolated by a procedure comprising precipitation with a C_2-C_6 alkanol;

an olefinically unsaturated monomer; and

a particulate filler;

wherein the composition after curing absorbs less than 0.5 weight percent water after 7 days at 85°C and 85 percent relative humidity.

42. (original) A curable composition, comprising:

about 1 to about 23 weight percent of a methacrylate-capped poly(2,6-dimethyl-1,4-phenylene ether) prepared by the reaction of an uncapped poly(2,6-dimethyl-1,4-phenylene ether) with methacrylic anhydride; wherein the methacrylate-capped poly(2,6-dimethyl-1,4-phenylene ether) is isolated by a procedure comprising precipitation with isopropanol;

about 1 to about 23 weight percent of an acryloyl monomer comprising at least two acryloyl moieties;

about 1 to about 23 weight percent of an alkenyl aromatic monomer selected from styrene, α-methylstyrene, 2-methylstyrene, 3-methylstyrene, 4-methylstyrene, 2-t-butylstyrene, 3-t-butylstyrene, 4-t-butylstyrene, 1,3-divinylbenzene, 1,4-divinylbenzene, 1,3-diisopropenylbenzene, 1,4-diisopropenylbenzene, styrenes having from 1 to 5 halogen substituents on the aromatic ring, and combinations thereof; and

about 75 to about 95 weight percent of fused silica;

wherein all weight percents are based on the total weight of the composition; and

wherein the composition after curing absorbs less than 0.2 weight percent water after 7 days at 85°C and 85 percent relative humidity.

43. (original) The curable composition of claim 42, wherein the alkenyl aromatic monomer comprises styrene and the acryloyl monomer comprises trimethylolpropane trimethacrylate or ethoxylated (2) bisphenol A dimethacrylate.

44. (original) A cured composition comprising the reaction products obtained on curing the curable composition of claim 1.

45. (original) A cured composition comprising the reaction products obtained on curing the curable composition of claim 41.

46. (original) A cured composition comprising the reaction products obtained on curing the curable composition of claim 42.

47. (original) An article comprising the cured composition of claim 44.

48. (original) An article comprising the cured composition of claim 45.

49. (original) An article comprising the cured composition of claim 46.

50. (original) A method of preparing a curable composition, comprising:

blending

> a capped poly(arylene ether) prepared by the reaction of an uncapped poly(arylene ether) with an anhydride capping agent and isolated by precipitation with a C_2-C_6 alkanol; and
>
> an olefinically unsaturated monomer;

to form a curable composition; wherein the composition after curing absorbs less than 1 weight percent water after 7 days at 85°C and 85 percent relative humidity.

51. (original) The method of claim 50, wherein the C_2-C_6 alkanol comprises isopropanol.

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